Marine Reserves Working Group Meeting
September 26, 2000
8:30 A.M.-5:00 A.M.
Veteran s Hall
122 West Cabrillo Boulevard
Santa Barbara, California

Draft Meeting Summary

In Attendance:

Patty Wolf, Co-Chair	Matt Pickett, Co-Chair	Locky Brown
Marla Daily	Gary Davis	Robert Fletcher
Dr. Craig Fusaro	Dale Glantz	Neil Guglielmo
Greg Helms	Mark Helvey	Deborah McArdle
Dr. Michael McGinnis	Chris Miller	Tom Raftican
Steve Roberson	Alicia Stratton	

Michael Eng, Facilitator John Jostes, Facilitator

Staff from CINMS: Dr. Satie Airame, Sean Hastings, Carla Navarro

Members of the public

Introductions

Patty Wolf, Dept of Fish and Game, Co-Chair of the Marine Reserves Working Group (MRWG), opened by noting the importance of this meeting and providing an overview of the agenda. She emphasized the need to work together in creating maps, to recognize each other s concerns and to be open minded. Built into the process is time to negotiate an outcome that works for everyone.

Matt Pickett, Sanctuary Manager, MRWG Co-Chair, is excited about the opportunity to create maps and seeking common ground. The Sanctuary has prepared a draft press release for the outcome of these meetings and would like MRWG review. The Sanctuary wants the press to convey the appropriate message regarding the process.

Outreach Update

Craig Fusaro - was contacted by Melinda Burns from the Santa Barbara News Press.

Bob Fletcher - participated in an on line discussion of marine reserves. He has provided an essay to the National Fisheries Conservation Center, headed by Brock Bernstein. The new center can be reached at www.NFCC-fisheries.org.

Greg Helms - The Center for Marine Conservation and its affiliates have been working to familiarize themselves with CINMS waters and geography. The environmental

community wants to improve its ability to participate by improving their knowledge of the resources in the region. This effort has been aided by Ben Waltenberger s GIS and mapping work. CMC has created 7 maps depicting the various resources within CINMS, and will make the maps available to the MRWG. The maps don t include analysis only factual geographic information.

Matt Pickett shared with the MRWG the challenge he has as both co-chair to the process and as a Sanctuary representative. Nationally, the Sanctuaries program is developing a policy on the role of reserves in Sanctuaries; reserves have already been designated in the Florida Keys National Marine Sanctuary.

John Jostes, lead facilitator, is also excited about the meeting and the community s willingness to try a different approach to solving problems. He is confident the group will work together toward a common outcome.

Adopt Meeting Summary from 8/22/2000

The meeting summary was adopted with minor edits, and will be posted on the Sanctuary s website.

Report from Facilitators on Between Meeting Discussions (John Jostes / Michael Eng)

Over the last couple of weeks the facilitators have met with MRWG members, face to face or over the telephone. A common theme has been the members interest in building on participation and coming away with a lasting decision.

Some of the messages they heard from MRWG members were:

- Motivation to work through the process
- Time is critical because we have met for over a year
- There is uncertainty in the data and goals set in the last meeting
- There remain obstacles in moving forward
- The small meeting were very productive and improved his understanding on how to move forward, and the confidential meetings allowed more open discussion.
- The dynamics of the process and group are changing
- MRWG goals and objectives are near closure and it s time to move forward
- There is a recognition of a surge of momentum internally (local and state) and externally (Nation wide)
- The process provides an opportunity to address challenges of establishing marine reserves in a constructive manner
- The MRWG process can influence future reserve processes
- Narrow window of opportunity before outside events surpass the MRWG process

- Recognition that the whole group must work as a unit and not fragmented
- When people are willing to listen, a relationship and trust is developed allowing each other to understand their respective organizations commitment
- Sense of renewed commitment
- Sense of apprehension regarding Science Panel s work and it effect on the MRWG decision
- Some interests have not been met
- Optimism and moving qualitatively forward such as gathering data for educational outreach
- Inability to finish goals and objectives stems from apprehension
- People are inserting interest as a place holder in goals because the stakes are high
- This can only be abstract for so long, with maps the process becomes tangible to the public

The facilitators reminded the group that the MRWG is not making any decision today, but is developing options, and to remain creative and open.

Socioeconomic Panel Update and Presentation

Bob Leeworthy, NOAA and Peter Wiley, NOAA described the economic data gathering and processing to date. The data available will help inform the MRWG in drawing lines to minimize impact to users. Keep in mind that all of the data is not fully quantitative. The Panel has documented different Sanctuary uses in 1x1 square mile blocks and has produced 12 different user profile maps. Squid data is the most detailed and the related fisheries squid fishermen participate in at other times of the year (i.e. sardine, anchovy). Kelp data is good too. The other commercial fisheries didn t want to separate the individual fisheries by species, and opted to provide an aggregate layer of data for all fisheries (excluding squid and kelp). These fisheries do not want their information to be used before map drawing. The fisheries data will be released only to measure impacts after maps are drawn and submitted for review by the Socio-Economic Panel.

The Socio-Economic Panel believes they reached a census on the coverage/data for charter boat consumptive and non-consumptive uses.

There are very few data sources for private boater information, and there are no funds to collect new information. There will need to be some assumptions used to delineate private boat use. There are three sources that are geo-referenced, the other sources will be used in impact analysis and are not spatial.

Tom Raftican — Will the Tetra Tech anecdotal survey information be made available?

Matt Pickett - Yes

Bob Leeworthy — Craig Barilotti has provided data that accounts for approximately 75% of the value of the commercial fisheries (excluding squid and kelp), the squid data accumulated accounts for approximately 65% of the total value of squid harvest in CINMS. Shrimp and prawn data have not been provided which presents a data gap.

Some of the DFG fish blocks (10x10 sq. mile) contain shrimping information (1996-1999 average is $800,0000/yr). Shrimp maps will be provided with some text, which adds a qualitative element to the data.

Regarding the impact analysis, a fishing economic assessment model used by the Pacific Fisheries Management Council details ex-vessel value as related to major economic impacts on income. Bob will need to check the model s assumptions and try and ground truth it with local data, this includes multiplier impacts. He wants to explore a method to detail economic impacts for each of the local harbors to provide a finer level of economic assessment.

Local income and employment impacts are part of the analysis. Supply and demand cost earning studies for commercial fishing are not available, but there are sources of information for recreational uses. To get this kind of information would require a detailed two-year study.

Once reserve boundary alternatives are forwarded, the impact analysis, with time for peer review, will require approximately two months.

Chris Miller — Can you distinguish between local and export markets for the Channel Islands fisheries (e.g. as described in the Environmental Defense paper by Rod Fujita).

Bob Leeworthy — We are looking at the PFMC model s assumption on Local County multipliers and considering what was sold and processed locally versus what was exported. This is important for determining consumer surplus. The best data source found is a master thesis on the urchin industry. For example, in the early 1990 s 90% of the urchins were exported, principally to Japan. Theoretically, a closure will affect Japanese consumers. The required regulatory review doesn t account for overseas impacts, only impacts on producers. Given that there are no cost to earning studies, a sample of data may be adequate for measuring producer impacts. Bob has asked the fishermen about this, but the fishermen responded with questions, not answers.

Tom Raftian — Reminded the group that global markets effect us locally.

Bob Leeworthy — Noted that supply/demand studies address global market effects, but there is no good commercial studies available.

Neil Guglielmo — The world market for squid is affected by fractions of a penny, and can be dependent on Argentina catch and how European markets react. China tariffs are a barrier for export and the price to fishermen goes up and down. Neil confirmed that there are no squid economic studies available.

Bob Leeworthy - In the Florida Keys National Marine Sanctuary reserve process there were more economic studies available. Regarding CINMS data collection, the September 19, 2000 deadline doesn t mean data will be excluded, data is considered up to the regulatory review period.

In summary, commercial economic data coverage is near 75% of value, there is 100% coverage for kelp and the charter boat industry.

Discussion ensued over the aggregate fishing data layer (all fisheries excluding kelp and squid) in the decision support tool.

Patty Wolf asked about the sources of economic information in Florida.

Bob Leeworthy - Florida Sea Grant, National Marine Fisheries Service and local fisheries associations.

Patty Wolf - inquired about the investment for the Channel Islands marine reserve process.

Matt Pickett - CINMS allocated over $80,000 for local contracts and NOAA s special projects office has allocated 50% time for two economists.

Michael McGinnis - pointed out that California is dreadfully behind in socio-economic data and analysis. For example, there are only five marine oriented socio-economist/policy type people in the entire UC and State University system. There is a need for more marine affairs and policy type programs.

Bob Fletcher — Sanctuaries and reserves seem to be entering the fisheries arena, what s needed are stronger partnerships within NOAA - NMFS, Sea Grant and Sanctuaries. These types of partnership would help fund the new work reserves will generate and require.

Mike Eng asked Bob Leeworthy to clarify what economic data has been received by the 9/19 deadline.

The data before the MRWG is everything received up until a couple of days before this meeting, there is still no data for prawns.

Chris Miller explained that the Prawn fleet is relatively small and expands with the influx of the ground fishermen who come from Oregon ports. Chris asked how long was the data collection effort in the Tortugas, Florida Keys process?

Bob Leeworthy - Data collection in Florida was more efficient, maybe three months total, and there was no additional money to conduct studies as in the CINMS case. The big difference was there were surveys already conducted or underway in Florida. The situation is much different in CINMS where there are not many studies or data sources to rely on.

Chris Miller— What time frame would be necessary to fill in missing data in CINMS region?

Bob Leeworthy — It would need to happen very soon to meet the DEIS and boundary alternative analysis. Revising this analysis for reserves would take about six months to capture data and substantial additional funding. A better question is why is data missing or not recorded? He believes the CINMS analysis is fairly strong because it captures the high value fisheries; except for the shrimp and prawn industry.

Tom Raftican - questioned the economic methodology, sources of information and expressed concern about the private boat users being excluded in the data.

Bob and Peter described the contracts let in the CINMS study, i.e. Dr. Kolstad, UCSB $25, 000 to research Commercial Passenger Fishing and Diving vessels. They added that additional economic analysis would require a minimum of $100,000 and two years to complete. The difficulty in the existing data is the lack of spatial data of users.

Peter Wiley - Three sources of statistical data were used for recreational uses — Marine Recreational Fisheries Surveys, National Park Service data, and the Sanctuary s overflight vessel monitoring program (SAMSAP).

Michael Eng- reminded the MRWG as they develop reserve options to draw on multiple sources of information, including their own first hand local knowledge.

Bob Leeworthy added that in Florida there were lots of maps and data, but what was not included to the extent it has been in CINMS was the collection of local knowledge, like the anecdotal survey.

Alicia Stratton - asked if the local yacht clubs had been contacted.

Bob Leeworthy — Yacht clubs were approached and only one response was received.

Tom Raftican — Concerned on how the data collection budget money was allocated.

Jim Brye — SAC recreation member, added that he received a letter from the Channel Islands Yacht Club urging for the creation of reserves. The negative response from one yacht club comes from a very small club. There is a misconception in the boating community about reserves prohibiting access.

Craig Fusaro - added that where data is needed for context to the maps, perhaps the SAMSAP data could serve as an appropriate surrogate.

Greg Helms - Assigning value to recreational and commercial consumptive uses is straightforward. How about valuing non-consumption uses? Surely there are potential economic benefits and intrinsic value to other sectors of society other than consumptive users.

Bob Leeworthy — The Socio-economic panel doesn t have non- use values except for some Park visitation data. Non-use value is an important dynamic. Another issue that needs to be addressed is relocation of user impacts following reserve implementation.

When lines are drawn impact analysis will include positive and negative effects with monetary values. The market value is equal to income and employment, the non-market values are equal to consumers surplus; a simple spreadsheet that shows how the analysis is done will be made available to the MRWG.

MORNING BREAK

John Jostes led the group in a review of the remaining goals and objectives asking them to clarify goals and objectives that address: what are we trying to do with reserves and why versus how can reserves be implemented. For today s exercise he asked the group to focus on what and why issues and postpone dealing with implementation (how) issues until the appropriate time.

Reserve Administration - MRWG issues raised regarding community involvement with this goal:

Mark Helvey - Need to define community, is it the scientist, agencies or the public communities?

Craig Fusaro - The goal speaks to inter and intra agency relationships, it needs to add in the community.

Steve Roberson - The MRWG was set up for a particular purpose and not to go on indefinitely to deal with implementation issues, especially funding, drafting Memorandum of Understanding, etc.

Tom Raftican - Intricate process, rational model, commitment to carry this on is not equal to just agencies, this is creative thinking in broad sense.

Chris Miller - Expansion of McGinnis community network idea, a definition is needed that identifies the communication barriers with specialists. The existing precautionary principle needs to branch out to include the best available information, such as local knowledge.

John Jostes - Are you suggesting a vehicle for community involvement? Should the group add guiding principles for implementation in final recommendation?

Matt Pickett — Still questions who this goal is directed to, the way it reads it is not intended for this group, suggests it be included as a recommendation not a goal in the final MRWG package.

Steve Roberson — Supports reclassifying Reserve Administration as a recommendation, noting that the reserve administration issues would be recommendations, not goals, and implementation is beyond the scope of this process and group.

Tom Raftican - Remember we are not operating in a policy vacuum, the agencies sitting here are seeking guidelines. Actually doing this may not be the purview of this group.

Michael Eng - asked for a clarification by the group - Are these goals or recommendations? He again reminded the group to consider differentiating between issues and questions of what, why and how (implementation).

Chris Miller — There is a role for the SAC, i.e. oversight on MOU s. Reserve Administration should focus on monitoring, evaluation and data management.

Bob Fletcher —We are trying to solve a problem with a full recommendation package. Historically the state and federal track record is dismal in dealing with all the issues raised under Reserve Administration.

The group by consensus moved Reserve Administration to a new category called Recommendations. This new section will accompany the entire MRWG recommendation package. Data Monitoring was kept within Reserve Administration.

Chris Miller requested clarification from the Science Panel on how they define research, monitoring and evaluation, and added that data monitoring is essential for adaptive management.

Mark Helvey - suggested connecting adaptive management to data monitoring.

John Jostes will work to tighten up the language.

The MRWG moved on to considering the Research Goal

The Science Panel review and recommendation for this goal was summarized. Members discussed their impressions of the science panel input and feelings on the importance of this goal.

Gary Davis noted that the goal is to understand reserves not necessarily a goal for research. The research goal lends support to the other goals, i.e. biodiversity. He recommended accepting the science panel advice to rename the goal.

Chris Miller is concerned that the Science Panel doesn t understand the MRWG s intent with the goals, and that the MRWG s intent has been poorly communicated by Sanctuary staff to them. He thinks of research as evaluation and monitoring. Fundamentally, the MRWG intent is to represent habitats and enhance fisheries.

John Jostes - believes the Science Panel is trying to understand MRWG intent, but the MRWG has gone back and forth on goals and has not delivered a clear message or direction.

Chris Miller - holds that there is a lack of communications between the Science Panel and MRWG. He contends that the Science Panel has changed MRWG s words without understanding what the MRWG intended.

Michael McGinnis - By design or not the Science Panel has moved along based on the direction we gave them in June, it is up to us to try and understand their assumptions and interpret their recommendations.

Deborah McArdle - recounted that the MRWG had a long discussion at the last meeting and agreed by consensus that we were going to readdress goals and objectives without changing them substantially and avoiding disrupting the Science Panel process.

Chris Miller - agrees that the MRWG did that, but MRWG members including a CINMS staff person didn t understand why the Sustainable Harvested Population goal was taken out.

Steve Roberson — The Science Panel accepted what we gave them and we changed it, they didn t change it. We should vote to reaffirm the biodiversity and sustainable harvested population goals.

Chris Miller — There is a difference between sustainable fisheries and sustainable harvested populations. The difference is sustainable fisheries takes into account fisheries management. Our primary concern is that reserves be integrated in this management framework. Populations are the abstract form that is removed from fisheries.

Bob Fletcher - added that there is a human element in fisheries, the management aspect is what the PFMC works on. Sustainable Harvested Populations is to narrow.

Deborah Mcardle - pointed out the distinction was that the word fishery was too broad, and that within CINMS we can only focus on harvested populations, not the entire fishery for a species.

Craig Fusaro - noted that management models are single fishery focussed.

Steve Roberson - Sustainable fisheries may impact the intent of protecting species or populations. Reserves are marketed as helping sustain fisheries.

Chris Miller — Don t change the word fisheries to harvested populations, the Science Panel is not addressing our core interest.

LUNCH BREAK

Science Panel Presentation

Science Panel Chair, Dr. Matt Cahn introduced the Science Panel members.

Dr. Bob Warner presented the theory and literature on reserves. Numerous studies demonstrate that marine reserves, (1) increase species diversity, (2) increase biomass, (3) increase relative abundance of marine species, (4) increase individual size, and (5) help protect marine habitats from human impacts. Some reserve designs contribute to the increase in relative abundance and size of marine species in fished areas adjacent to reserves.

For example, establishing large reserves on the Georges Bank in 1994 has proved to be an important element leading to more effective conservation of numerous resources and nonresource species (summarized in the handout entitled Empirical Data). Within 5 years of closures, exploitation rates (proportion of the stock at the beginning of the year killed by the fishery during the year) declined for all species. Spawning stock biomass (from increased survival and size in reserves) increased in all species, up to 700% for haddock. Placements of the closed areas afforded the greatest year-round protection to the shallow sedentary assemblages of fishes (primarily flounders, skates, and others) and bivalve mollusks. As expected, the fastest-growing species (especially scallops) showed the most rapid responses to reserve establishment. Scallop biomass increased 14-fold within the closed areas between 1994 to 1998.

Dr. Joan Roughgarden discussed the modeling approach employed by the Science Panel. For conservation, the benefit of a reserve increases continuously with size. Larger reserves protect more habitats and populations, providing a buffer against losses from environmental fluctuations or other natural factors that may increase death rates or reduce population growth rates. A reserve designed purely for conservation of populations of interest would include the entire CINMS. Reserves less than 100% of the CINMS would conserve fewer sustainable populations of interest.

For fisheries management, the benefit of a reserve does not increase directly with size. The maximum benefit of no-take reserves for fisheries, in terms of larval export and adult spillover, occurs when the size of the reserve is large enough to sustain local production leading to export and spillover, but is small enough to minimize the economic impact to fisheries. Data from harvested populations indicate that on average, populations below 5-70% of their normal carrying capacity are not sustainable in the long term. Given the available empirical data, a minimum reserve size of 30% would sustain approximately 70% of the species for which data are currently available. To meet the minimum requirements for all species of interest, the fraction set aside in reserves would need to exceed 70% of the CINMS.

Allowing harvested populations to rebound to stable levels will require a reduction in fishing effort by 30-50%. One way to lower the fishing effort is to set aside 30-50% of the suitable habitat as a reserve, while maintaining the current fishing effort outside

reserves. The same protection of populations and long-term profit could be attained without no-take reserves if the fishing effort were lowered by 30-50% everywhere.

Dr. Steve Gaines discussed how natural and human-induced catastrophe impact the effectiveness of marine reserves, using oil spills as an example (summarized in the handout entitled The Insurance Factor). When viewed across long temporal and large spatial scales, severe disturbances in marine ecosystems are not uncommon. For marine reserves to be effective, the total area protected must not be disturbed simultaneously by catastrophes. A simple way to increase performance of a reserve network is to allow for the effects of catastrophic disturbance by inclusion of additional area. The minimum effective reserve size is the size of a reserve network that will meet the goals for the reserve (e.g. conservation) in a stable environment multiplied by an insurance factor that takes into account the frequency of severe disturbance to the environment. Allison *et al.* (in press) developed a method of determining this insurance factor based on the incidence of catastrophic events and the rate of ecosystem recovery. In the Santa Barbara region, the insurance factor varied from 1.2 to 1.8, suggesting that the minimum sustainable reserve size in the Santa Barbara region should be 1.2-1.8 times larger than the minimum sustainable reserve size in a stable environment (with no unpredictable catastrophic events) (Allison *et al.,* in press).

Dr. Satie Airame, post-doctoral researcher, delivered the Science Panel s advice on necessary size of reserves and design considerations based on a habitat approach (summarized in the handout entitled Executive Summary: Recommended Reserve Size). The Science Panel agreed that the best available science demonstrates that the minimum area set aside should be no lower than 30%, and perhaps at 50% of the CINMS, to protect representative and unique marine habitats, ecological processes, and populations of interest. To maintain biodiversity requires maintaining the ecological roles of all species in natural population densities and sizes. If some of these species are fished, then no-take reserves must be of a size (or percentage) to guarantee sustained population levels of all species within the reserves. A reserve designated purely for conservation of populations of interest would include the entire CINMS. If unprotected areas contribute little or nothing to the production inside the reserve, then reserves less than 100% of the CINMS will become increasingly less likely to conserve sustainable populations of interest. Data from harvested populations indicate that on average, populations below 5-70% of their normal carrying capacity are not sustainable in the long term. Given the available empirical data, a minimum reserve size of 30% would sustain approximately 70% of the species for which data are currently available. To meet the minimum requirements for all species, the fraction set aside in reserves would need to exceed 70%. These minimum estimates based upon species conservation are similar to sizes based upon optimal fisheries yields from reserves. Thirty to fifty percent of the CINMS is the best estimates of reserve size that will achieve some measure of protection for either conservation or fisheries goals. Because of the complexity upon which this estimate is based, evaluation of its effectiveness is necessary to determine whether alteration (reduction or increase) is appropriate based on future assessment.

MRWG member comments and feedback on Science Panel presentations

Locky Brown - noted that the existing reserve areas within CINMS were not considered in the Science Panel exercise, and that overlaying existing reserves would be more palatable than creating new reserve areas.

Chris Miller — Based on their recommendation the MRWG is still left with species issues. The Science Panel does not have species specific information, fishermen do, and we are willing to work with the scientist, if the scientists are willing to work with them.

Steve Gaines — The 30% set aside is based on a habitat approach in the absence of species specific data.

Chris Miller - In addressing socio economic issues we have to go for maximum quality habitat. Is the Science Panel willing to accept local knowledge on habitats?

Joan Roughgarden — If the fishing community give Satie exclusion area she can model with 30% closures as a parameter.

Chris Miller — The percentage is not the issue, but being interactive with local knowledge is important so that the Science Panel is comfortable with the MRWG process.

Michael Eng — Can the Science Panel focus on higher quality habitat?

Satie Airame — This is somewhat addressed in the biological data for kelp, birds, etc. There is overlap in species and habitat diversity.

Chris Miller — Discussed importance of major reef systems around the Islands and their connectiveness to oceanographic forces. He is seeking an open forum not through staff, models and facilitation.

Bob Warner - Offering dissimilar areas would allow users to choose and these areas could be checked through the model.

Bob Fletcher - Resources are not unique to this area and other reserve processes are in motion. Closures of 20% were proposed in the PFMC process as being sufficient when utilized with other fishery management tools. Large reserves reduce the need for other management measures. We could start negotiating from hot spots. He is still uncomfortable assuming traditional management is no longer part of the management equation.

Michael Eng — Asked Science Panel to clarify the fishery management assumptions that went into recommendation.

Joan Roughgarden — Assumptions were that fisheries management at r level would lead to MSY. If the Council goes less than k/2, serious guarantee on quota setting would be necessary.

Steve Schroeter - Reserves can affect population growth not a species biology.

Bob Fletcher — Noted that all rockfish are not in trouble, and there is hardly any population/ biomass estimates for most of the species.

Russ Vetter - For conservation purposes this is assuming no other problems - intrinsic means intrinsic.

Joan Roughgarden — Emphasized that reserves are precautionary, and the MRWG should not assume the best case scenario.

Steve Roberson — Thanked the Science Panel.

Bob Warner — There seems to be a big focus on fishing, the MRWG needs to remember that biodiversity is vital. It is important to sustain all members and elements of an ecosystem, the hardest to protect often are the ones that are fished, which require protection in larger areas.

Steve Gaines — Think of reserves as a collective solution that reconstructs an entire ecosystem, it is a spatial solution that works with all species.

Joan Roughgarden - Conservation goals should be higher than fishery goals.

Dale Glantz — Would like a ranking of species, especially for kelp.

Steve Gaines — We were not looking at individual species through the modeling.

Chris Miller — Does the Science Panel have any problems with calling a goal fisheries management, given that the modeling is based on fisheries management? This isn t exclusive from biodiversity.

Steve Gaines - We have been working with both goals — for biodiversity and sustainable fisheries or harvested populations, we do not view them as exclusive goals.

Joan Roughgarden — Regardless of what you want to call it, it is a principle of ecology to sustain populations (or fished population) for biological purposes.

Chris Miller - We prefer fisheries management as the goal.

Tom Raftican - Not assuming everything is in a dire condition, and not affecting core reserve areas, what does the Science Panel think about buffer areas around reserves with limited take?

Bob Warner — Buffer areas do not completely protect habitat.

Matt Pickett offered a summary of Science Panel advice -

1. Reserves will work in the CINMS region
2. 30-50% of the habitat should be set aside
3. Habitat based model was applied, and every species of interest is covered.

THE MEETING ADJOURNED.